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Validation of the Brazilian Portuguese Version of the *Dellas Identity Status Inventory*

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Abstract

Occupational identity provides a sense of direction and meaning and helps to establish a framework to define occupational goals. One of most prominent frameworks for the study of occupational identity is Marcia's identity status paradigm. The Dellas Identity Status Inventory was developed to assess occupational identity statuses according to Marcia's framework. The aim of this study was to adapt and validate the Portuguese version of this inventory to the Brazilian population, using a sample of 358 college students of both sexes (72.9% woman), aged 18 to 41 years old ($M=23.86$, $SD=4.57$), attending a public university in the southern part of the country. The intercorrelations among the inventory subscales and its reliability (Cronbach alpha) and construct validity (principal factor analysis) were analyzed. Additionally, the inventory's external validity was analyzed, taking into consideration the gender and age of the participants. We used the Kruskal-Wallis Test, Chi-Squares, and T-Tests in the external validity analysis. Results supported a clear interpretable four-factor solution (diffusion, achievement, foreclosure, and moratorium) and satisfactory reliability coefficients of the inventory subscales, from .79 to .89. Results for external validity indicate gender statically significant differences for Moratorium identity status, favoring male. Overall, the results of this study suggest that the Brazilian Portuguese Version of the Dellas Identity Status Inventory can constitute a useful measure to the study of vocational identity in the Brazilian population. Limitations and suggestion for further research are discussed.

1. Introduction

According to Erikson [1, 2], the main psychosocial task in transition from adolescence to adulthood is the identity crises resolution, meaning reaching an identity sense opposite to a diffuse identity. The successful resolution of this crisis depends on the ego's capability to synthesize significant identifications, futures aspirations, and opportunities available in social roles. This process of identity formation is based on the examination of alternatives and commitments to meaningful choices among such ego identity elements as occupation [3].

Many identity domains are recognized, such as occupational, political, and relational [4, 5]; however, since Erikson's work, the occupational identity has been featured prominently [6]. Theoretically, a well-established occupational identity allows the individual to make easy, rational, and mature career decisions [7]. This proposition is supported by a number of studies of adolescents and young adults where positive associations have been reported between occupational identity and career decision-

making skills, interest, career search, and decision-making self-efficacy, career choice readiness, and career decidedness [e.g., 8, 9, 10].

Most notable in this area has been the work of Marcia [11, 12, 13] as his identity status paradigm is the most used framework to conceptualize and operationalize Erikson's theory of identity development since the 1970s [14, 15]. Starting with the Erikson's notion of Identity versus Identity Diffusion, Marcia uses two dimensions, exploration and commitment, to assign individuals to one of four statuses. Exploration refers to the questioning and weighing up of various identity alternatives. Commitment refers to the choices made in identity relevant areas [11].

Marcia [11] described four different identity statuses, based on the extent to which individuals explore and make a specific commitment in an identity domain. Achievement is characterized by a period of active exploration leading to a firm identity commitment. Foreclosure is characterized by strong commitments without having explored other possible alternatives. Moratorium refers to adolescents' active exploration of different alternatives without strong current commitments. Finally, Diffusion refers to persons who do not actively explore different identity alternatives and who lack strong identity commitments.

However, a more complex description can be made. People in Achievement propel themselves forward and keep focus on their lives. Even they who have some flexibility are not easily influenced by external factors and pressures. When faced with obstacles, they will persevere in their options and keep themselves open to understanding others' experiences, whose divergent opinions may be considered reflexively and non-defensively [16].

Moratoriums are fighting to define themselves. They are lively, engaging, conflicted, and sometimes tiring to be around. They can try to engage the others in their identity-formation project, sometimes setting others up to take a position polar to their own stated one, so that they may be at least temporarily relieved of the internal conflict they are undergoing by converting an interior struggle into an external one [16].

People in Foreclosure may appear as strong and self-directed as Achievements. However, because of their difficulty in considering alternatives seriously, they must maintain their stances defensively and either deny or distort disconfirming information. Their values are generally mainstream and they stay within social contexts supporting those values. Generally, they appear well-adjusted to their social groups. But if they stray from these conforming positions, they experience both self and group rejection [16].

Diffusions come in a variety of styles, all having in common a weak or non-existent exploratory period and an inability to make definite commitments. People in diffusion seem to lack a solid identification with significant others. In identity terms, while superficially well-adjusted diffusions do exist, they require a defining context to supply externally

what is internally lacking [16].

Revisions to the original identity status paradigm were suggested, in part, by Marcia's recognition that some individuals appear to be characterized by fluctuations between Moratorium and Achievement, which he called the *MAMA cycles* [17]. Individuals in *MAMA* have made identity commitments, but did not disengage from the process of exploration. They are characterized by continuously updated, dynamic, and flexible choices rather than a static commitment.

1.1. The Dellas Identity Status Inventory-Occupation

Based on the Identity theoretical concept of Erikson [1], the identity status paradigm of Marcia [11, 12] and in the studies of Waterman, Geary, and Waterman [18] and Matteson [19], Marie Dellas [20] developed a scale concerned with evaluating occupational identity, the *Dellas Identity Status Inventory-Occupation* (DISI-O). The scale intends to identify the occupational identity of individuals in five statuses, four of them designed with the original Marcia's names and meanings: Achievement, Foreclosure, Diffusion, and Moratorium, and an additional status designated as Diffusion-luck. Each status is characterized by the presence, absence, and degree of exploitation of alternatives and commitment and action on issues of occupational identity [21]. Many versions have been made since the creation of the DISI-O, related to the items number and the number of identity statuses. The first three scale versions gradually reduced the number of items (from 64 to 32), all of them with a quadruple factorial structure. A fourth version proposed five factors—the fifth unfolded from Diffusion, named Diffusion-luck [22].

The last version from the author and colleague [23] changed the Likert-type scale to the forced-choice method and retained 35 items based on the exploration and commitment criteria. The 35 items are grouped in seven sets of five items; each item in the sets refers to a specific identity status [21]. In every set, the respondent is asked to check the item that fits him or her best. The number of items checked for each status is added together, and the respondent is assigned to a status when at least four of seven possibilities relative to the status are checked. An individual who does not select at least four statements on a particular status is considered Unclassified [3].

Previous studies with DISI-O [23] with a sample of 354 American high school and college students revealed good reliability coefficients. Cronbach's alpha for Foreclosure was .92, Achievement had .91, Moratorium .84, and somewhat lower values to Diffusion subscales (.71 and .62 to Diffusion and Diffusion-luck respectively). A study from the same authors [3] with a sample of 1033 cadets from a military academy found Cronbach's alpha between .80 and .90 for Achievement, Foreclosure, and Moratorium. Diffusion presented slightly lower reliabilities coefficients, in the range of .70. The Diffusion-luck subscale presented

Cronbach's alpha between .30 and .48, and was representative only for 1% of the participants. The author chose to combine the Diffusion and Diffusion-luck subscales [3].

Meeus [24] found values that sustained the five factor structure. His values for reliability were similar to those found by Dellas in the Achievement (.89), Foreclosure (.94), and Moratorium subscales (.74). Diffusion got .70 and Diffusion-luck .65, close to the original values from the Dellas e Jerningan [23] study. However, in this study, the author chose to follow recommendations from previous studies [3] and combine the Diffusion and Diffusion-luck subscales. A study about occupational and religious identity [25] used the DISI-O version with 35 items and four factors, although it does not comment about the reasons to cut off the fifth factor. The Dutch version of DISI-O identified five statuses, keeping Diffusion-luck [26].

1.2. The Portuguese Version

The Portuguese version of DISI-O was developed by Taveira [27] and was used as the basis of the current study. Taveira's adaptation study was made with a sample of 600 middle and high-school students (from 7th to 11th grade), with ages ranging from 11 to 21 years. This initial study subsided subsequent work with the aim of improving the version [21]. The Portuguese version uses five-point Likert-type scales, coded 5 for "Totally like me" through 1 "Totally disagree with me." In order to reduce social desirability bias, the sum method was altered. Each item belongs to a particular status; all scores in the Likert-type scales from the items in a particular status are summed. The identity status of the respondent is the one that presents the highest score. These studies have evidenced the existence of four dimensions in the Portuguese version of DISI-O.

Both studies [27, 21] concluded that Achievement, Foreclosure, and Moratorium were represented into distinct dimensions. The four, and a possible fifth, dimensions had a harder interpretation and the values do not support independent dimensions, as both appeared to converge to a single psychological meaning [21]. Taveira and Campos [21] made further discriminant validity analysis about gender and age differences. Older students are less likely to be in Foreclosure and Diffusion. Male students are reported to have higher scores in Diffusion.

The major number of studies with DISI-O was with high-Scholl students samples [28, 29], and some recent works used samples formed by college students. Silva [22] made a study with 118 Portuguese college students with the four-factor version. The Cronbach's alpha was .85 for Achievement, .86 for Foreclosure, .65 for Moratorium, and .60 for Diffusion.

1.3. Current Study

Although occupational identity is important, we did not find any scale adapted or developed to evaluate Identity status in accordance with Marcia's framework for the

Brazilian population. Thus, there is a need to develop measurements on the subject. The adaptation of an existent scale has some advantages over the development of a new one. It makes comparisons possible between different cross-cultural samples and different contexts, as well as allow equity in the evaluation and the possibility of generalizations [30]. The aim of this study was to adapt, validate, and study the external validity in the DISIO-O in the Brazilian population. Specific hypotheses for the research are given below:

Hypothesis 1a) The DISIO-O factorial structure for Brazilian will be a four-factor solution;

Hypothesis 1b) Reliability coefficients will be greater for Achievement and Foreclosure Identity status and lower for Diffusion;

Hypothesis 2a) The increase in age decreases the likelihood of a participant to be in Foreclosure and Diffusion;

Hypothesis 2b) Men will have higher means to Diffusion identity status.

2. Method

2.1. Participants

Overall, 358 participants completed all DISI-O, of that, 261 (72.9%) were women and 97 (27.1%) were men. The age range was 18–41 ($M=23.86$, $SD=4.57$). As for their current majors, 23.5% majored in humanities or arts, 21.8% majored in social sciences, 26% in Medical and Health sciences, 17.3% in Engineering and Technology, 8.9% majored in Natural sciences, and 2.5% in Agricultural sciences. With regard to the year of study, 19.3% were freshman, 3.1% were sophomores, 5.6% were juniors, and 65.3% were seniors.

2.2. Procedure

Participants were recruited from the college students of a south Brazilian university, all aged 18 years and older. Next, each was sent a request for participation in a survey through SurveyMonkey; the online survey tool was configured with the informed consent, additional demographic information, and the instruments. There were 2054 invitations sent, and from these 614 questionnaires were returned.

Data was collected during the end of the spring semester and the beginning of the autumn semester of the school year. Participation was voluntary and anonymous.

From the initial 600 questionnaires, 256 surveys that had more than 10% missing in the DISIO-O data were removed [31]; thus, the final sample was composed of 358 college students. Six variables showed a missing data portion of 0.01, and we used multiple imputation for dealing with this missing data [32].

2.3. Instruments

The 35-item, 5-Likert instrument was adapted for use in Brazil based on the Portuguese version [21, 27]. This step was performed by a committee made up of Portuguese and Brazilian researchers. It's worth mentioning the step was not a translation [33], since the same language is spoken in both

countries, but rather a cultural adaptation [30, 34]. Indeed, adaptations from some scales use the same version for Brazil and Portugal [35].

The adaptation was syntactic, not semantic. Even though there are no differences in the meaning of the expressions between Portugal and Brazil, they can differ in phrasal structure and patterns. Most common are the simplification and deletion of some grammatical structures [36]. We decided to keep the original formulation when we found those differences, and as an example, we can cite the following. In the original scale, *Career* was used in general references; however, in more specific situations the *occupational*, *profession*, and *professional* was used. The Portuguese version used indistinctly the expressions *study*, *job*, and *occupations*, instead of the original. In this case, we decided to keep the original formulation. Thus, the item from the Portuguese version: “I have already informed myself about the various possibilities of studies and professions; I did my choice of career and I am satisfied with it” was rewritten for the Brazilian version as: “I have already informed myself about the various career possibilities; I did my choice and I am satisfied with it”.

We submitted this preliminary version to a Brazilian psychologist with experience with college students. The filling instructions were considered clear and the items appropriate for the Brazilian context. Next, the scale was placed in the online survey tool and sent to a small group of

Brazilian college students, and they reported good understanding of the items.

In addition to the DISIO-O, we collected sociodemographic data in order to proceed to the external validity analysis. After the adaptation step, we proceed to factorial validation, reliability tests, and external validity analysis. The analyses were computed using the Statistical Package for Social Sciences version 20 [37].

3. Results

3.1. Factorial Structure and Reliability

The Kaiser-Meyer-Olkin measure of sampling adequacy (KMO=0.92), and the Bartlett's test of sphericity was significant ($\chi^2=6055$; $p<0.001$), indicating a factor analysis was appropriate.

First, we conducted a factorial analysis of the 35 items without rotation, and in this step we evaluated the factors to be extracted. Guttman-Kaiser (GK) criteria [38, 39] indicated six factors with an Eigenvalue above 1, but only the first four factors presented greater distinction. The Scree Test [40] clearly indicated four to five factors.

Next, we conducted two exploratory analysis with the Promax rotation, with five and four factor respectively. The method was used due to correlations greater than .30 between in four correlations (Table 1).

Table 1. Intercorrelations of DISIO-O subscales.

	Diffusion	Anchievment	Foraclosure	Moratorium
Diffusion	-			
Anchievment	-.54	-		
Foraclosure	-.16	.40	-	
Moratorium	.56	-.45	-.26	-

The five-factor extraction accounted for 55.84% of the total variance; however, one of the factors had just one item loaded above .30 (.39). The four-factor extraction accounted for 51.9% of the total variance and with all factors had at least three loads greater than .40 (Table 2). The four-factor solution presented better results than the five-factor solution, thus we used such structure on the next analysis.

Table 2. Principal Axis Factor Analysis (PAF) with Promax rotation (four factor extraction) for DISIO-O (N= 358).

Items	Factor			
	1	2	3	4
1 I'm informing myself carefully about career possibilities and I am sure that I will be satisfied with what I'll choose.		.65		
2 I have already informed myself about the various career possibilities; I did my choice and am satisfied with it.		.77		
3 It is too early for me to be concerned about my professional future.	.37			
4 I have long known what my career will be like, so it has not been necessary to waste time with this problem.			.48	
5 I'm waiting for what may happens, because I'm still not sure about what career to choose.	.39	-.40		
6 I have not yet chosen my career path because I do not want to make a decision until things become clear.	.59			
7 Problems in career decisions tend to solve themselves, because it is very difficult to take into account all the important aspects in the career choice.	.52			
8 Trying to adjust everything was never one of my problems. I will do exactly what I had decided to do when I was a child.			.79	
9 I am presently informing myself about various career possibilities to follow.				.67
10 I've already obtained the information about various professions and now I know what I'm going to do.		.78		
11 People used to say that school changes our ideas about the profession that we want to follow but this has not happened to me. I remain interested in what I chose as a child.			.82	
12 A person's professional life tends to solve itself on its own, so it is not worth worrying about career choices.	.75			
13 What I learned at university helped me analyze some career possibilities, but I am considering others before making a decision.				.52
14 I am not making decisions about my career because I do not want to compromise myself and lose opportunities that	.61			

Items	Factor			
	1	2	3	4
may arise.				
15 After analyzing many possible occupational options, I believe I have decided on a specific career.		.69		
16 I questioned myself about various career possibilities and I have solved my doubts and now I know what my goal is.		.87		
17 I know there are several professions that fit my abilities. Now I am analyzing to see which one excites me the most.				.64
18 I have not yet decided for a career path because there are so many possibilities and I do not want to make a decision too soon.	.53			
19 Things will solve themselves, regardless of whether I look at different occupational future possibilities.	.85			
20 I have never had any doubts about my career choices, and now I am striving to make those decisions.			.61	
21 I can't see myself in any profession or job but I think things will work themselves out.	.65			
22 I always wanted to pursue a particular profession and never thought of another.			.83	
23 I informed myself about the different career possibilities and now I can see myself working in what I have chosen.		.90		
24 I'm close to making my career choice, although I sometimes think I should do something that I'm good, and other times think I should try harder to use other skills.				.38
25 I have a rough idea about my professional choice, but for now I want to leave the decision open.	.52			
26 When I was a child I decided on my career and I have never seriously considered other alternatives.			.80	
27 My career decision is open because I want to be able to adapt to all the possibilities that may arise. I'll probably start deciding soon.	.46			
28 I am waiting to see what happens, because in academic and professional life luck matters a lot.	.75			
29 After informing myself about different career possibilities, I know exactly what my professional objective will be.		.86		
30 I have reduced the range of options but I am still investigating some career possibilities, to make sure that I will choose the most appropriate.				.63
31 At this moment, I only worry about the studies because my professional life will depend a lot on friends and acquaintances.	.60			
32 The school influenced me in the decision of my professional future and now I know what I will do.				.59
33 The school has helped me to identify my abilities, but now I am analyzing various career alternatives to decide in which of them I'll be satisfied.				.84
34 I am open to career possibilities while at university because I do not want to compromise before I know what I am going to follow.				.53
35 My academic experience has finally confirmed the professional choice I made as a child.			.86	
Initial Eigenvalues	10.18	4.10	2.28	1.60
KMO = 0,92				
% accounted variance= 51,90				
Cronbach's alfa (α) = 0,76				

To maintain the item, we define the follow criteria: i) loads greater than .40 in just one factor; ii) when the item loads in more than one factor, the subtraction between the loads should be less than .15 (absolute values); iii) item-factor correlations (communalities) greater than .40. To maintain a factor, we define that it should have at least three valid items in accord with the criteria above, and at least one of them loading greater than .40.

According to the criteria, we eliminated six items (1, 3, 5, 14, 24, 31 e 32). Items 1, 14, 24, 31, and 32 presented communalities, .36, .37, .34, .29, and .30, respectively (criterion iii). The item 3 loaded above .40 (criterion i), and

the item 5 loaded .39 in the factor 1 and -.40 in the factor 2 (criterion ii)

The remaining 29 items that met the criteria previously established were used in a new exploratory factorial analysis with oblique rotation in order to prove the four-factor structure. This analysis revealed that all items met the criteria listed above, with the exception of item 18 which loaded greater than .40 in more than one factor (criterion ii). We decided to remove the item and perform amid the exploratory factor analysis; now with 28 items, this analysis met all criteria and accounted for 56.77% of the total variance (Table 3). The four factor solution is aligned with hypothesis 1a.

Table 3. Principal Axis Factor Analysis (PAF) with Promax rotation (four factor extraction) for DISIO-O (N= 358).

Items	Factor loadings			
	1	2	3	4
2 I have already informed myself about the various career possibilities; I did my choice and am satisfied with it.		.71		
4 I have long known what my career will be like, so it has not been necessary to waste time with this problem.			.48	
6 I have not yet chosen my career path because I do not want to make a decision until things become clear.	.57			
7 Problems in career decisions tend to solve themselves, because it is very difficult to take into account all the important aspects in the career choice.	.57			
8 Trying to adjust everything was never one of my problems. I will do exactly what I had decided to do when I was a child.			.78	
9 I am presently informing myself about various career possibilities to follow.				.72
10 I've already obtained the information about various professions and now I know what I'm going to do.		.77		
11 People used to say that school changes our ideas about the profession that we want to follow but this has not happened to me. I remain interested in what I chose as a child.			.81	
12 A person's professional life tends to solve itself on its own, so it is not worth worrying about career choices.	.75			
13 What I learned at university helped me analyze some career possibilities, but I am considering others before making a				.64

Items	Factor loadings			
	1	2	3	4
decision.				
15 After analyzing many possible occupational options, I believe I have decided on a specific career.		.67		
16 I questioned myself about various career possibilities and I have solved my doubts and now I know what my goal is.		.88		
17 I know there are several professions that fit my abilities. Now I am analyzing to see which one excites me the most.				.75
18 I have not yet decided one career path because there is so many possibilities and I do not want to make a decision too soon.	.41			
19 Things will solve themselves, regardless of whether I look for different occupational future possibilities.	.88			
20 I have never had any doubts about my career choices, and now I am striving to make those decisions.			.62	
21 I can't see myself in any profession or job but I think things will work themselves out.	.66			
22 I always wanted to pursue a particular profession and never thought of another.			.82	
23 I informed myself about the different career possibilities and now I can see myself working in what I have chosen.		.89		
25 I have a rough idea about my professional choice, but for now I want to leave the decision open.	.49			
26 When I was a child I decided on my career and I have never seriously considered other alternatives.			.78	
27 My career decision is open because I want to be able to adapt to all the possibilities that may arise. I'll probably start deciding soon.				.48
28 I am waiting to see what happens, because in academic and professional life luck matters a lot.	.70			
29 After informing myself about different career possibilities, I know exactly what my professional objective will be.		.85		
30 I have reduced the range of options but I am still investigating some career possibilities, to make sure that I will choose the most appropriate.				.73
33 The school has helped me to identify my abilities, but now I am analyzing various career alternatives to decide in which of them I'll be satisfied.				.78
34 I am open to career possibilities while at university because I do not want to compromise before I know what I am going to follow.				.58
35 My academic experience has finally confirmed the professional choice I made as a child.			.84	
Initial Eigenvalues	2.04	8.52	3.86	1.50
KMO = 0,91				
% accounted variance = 56,77				
Cronbach's alfa (α) = 0,72				

In total, 9 items loaded in the first factor (6, 7, 12, 18, 19, 21, 25, 27 e 28), and these items were related to the Diffusion and Diffusion-luck subscales. Due to the fact that these two subscales have been merged in previous studies [3], we considered this factor as the Diffusion dimension. All the items considered as belonging to the Diffusion dimension in the Portuguese version are included in the set (7, 12, 19, 21, and 28) with exception of item 3, which has been removed due to low factorial load. The Cronbach's alpha of the subscale was .87, greater than the original version (.64 and .71) and the Portuguese version (.68).

The second factor grouped seven items of (2, 10, 15, 16, 23, and 29), related to the Achievement items in the original version. This composition was very similar to the Portuguese version [9, 21]. The difference was only in item 32, removed for low factorial load. This scale obtained Cronbach's alpha .89, similar to the original version (.91) and the Portuguese version (.90).

The Foreclosure dimension, related to the third factor, was composed of seven items (4, 8, 11, 20, 22, 26, and 35), corresponding to the same structure of the original version [21, 23]. The reliability of the dimension was .87, similar to the original (.92) and Portuguese versions (.85).

The fourth and last dimension exhibits six items related to the Moratorium dimension (9, 13, 17, 30, 33, and 34). Four of the items are the same as in the Portuguese version and five items are the same as the original version. However, item 34 loaded in a different dimension than previous studies. In both Portuguese and the original scale, item 34 loaded on the Diffusion dimension. The item structure and text was analyzed ("I am open to possibilities in relation to my career

while I am at college because I do not want to compromise before knowing what I am going to do next"), indicating some exploration but without commitment. These two characteristics indicate semantic consistency and theoretical relevance. We considered it appropriate to classify the item in the Moratorium dimension in the Brazilian population and decided to keep it. Cronbach's alpha was .79, slightly below the Portuguese population (.86), but higher than values found with Portuguese college students [22]. The differences in reliability coefficient partially support the hypothesis 1b, Achievement had the higher Cronbach's Alpha, although, the lower value was for Moratorium. Diffusion and Foreclosure had the same values.

Table 4. Cronbach's alpha to the Brazilian sample compared to Dellas and Jernigan [23], Taveira [9] and Silva [22].

	Brazilian Sample	Dellas & Jernigan	Taveira	Silva
Anchievment	.89	.91	.90	.85
Foraclosure	.87	.92	.85	.86
Diffusion	.87	.64*, .71**	.68	.60
Moratorium	.79	.84	.89	.65

*Diffussion-luck, **Diffusion

3.2. External Validity

External validity was evaluated by comparing the scores in each dimension and the identity status by gender and age.

To test hypothesis 2a, we intended to perform analysis of variance to test age differences (table 5) between the different statutes. However, the assumptions of normality of the distribution and homogeneity of the variances were not

fulfilled. We identified the presence of outliers in the age variable; thus, we performed an analysis using only participants less than or equal to 33 (1.96 standard deviation). Since the assumptions of normality were still not met, we decide to use the Kruskal-Wallis, which revealed that there were no statistically significant differences between the participants in relation to age ($\chi^2(3) = 6.11, p = 0.11$). The results do not support hypothesis 2a.

To test the hypothesis on gender differences, we compared means of each identity status and the number of participants

divided by gender in each identity status.

To compare the means for gender in each identity status, we used t-tests for independent samples. Results found significant differences between men ($M = 18.78, SD = 4.25$) and women ($M = 17.44, SD = 5.01$) only in relation to Moratorium status; $t(356) = -2.38, p < .05$. To examine the relationship between sex and identity status, a Chi-square test was performed, which found no significant differences ($\chi^2(3) = 4.01, p = .25$). Those results partially support hypothesis 2b.

Table 5. Frequency and mean by gender and age for DISI-O subscales ($N=358$).

Variable	Frequência e Médias											
	Achievement			Foreclosure			Diffusion			Moratorium		
Gender	N	M	SD	N	M	SD	N	M	SD	N	M	SD
Female	148	20.83	5.39	17	14.48	5.02	21	13.82	4.59	69	17.57	4.97
Male	55	20.27	5.19	3	14.47	4.90	8	15.62	4.11	37	18.85	4.08
Age												
18-20 years	41	20.65	5.23	3	13.12	4.87	6	14.74	4.33	30	18.77	5.24
21-25 years	95	20.62	5.54	5	14.70	4.91	16	14.67	4.56	50	18.04	4.45
25-30 years	39	20.63	5.16	6	14.79	4.80	6	13.23	4.53	19	17.16	4.82
31-42 years	16	21.18	5.03	5	16.38	5.44	1	13.71	4.62	5	16.70	4.79

4. Discussion

Occupational identity provides a sense of direction and meaning and helps to establish a framework to define occupational goals [41, 42]. Research within the Occupational Identity field opens possibilities to deepen understanding of career development in contrast to other life domains. The most prominent framework about occupational identity is Marcia's Identity status paradigm [14, 15].

The DISI-O is a scale developed to evaluate occupational identity in accord with the Marcia framework. However, we did not find instruments related to identity status developed or adapted to the Brazilian population. This fact motivated the adaptation and validation of DISI-O to the Brazilian population. In addition, the Portuguese version offered a starting point for the job, since Brazil and Portugal share the same language.

Our first hypothesis about the four-factor structure was supported. Results demonstrated that the adapted version of DISI-O presented a factorial structure similar those found for other studies with four factors [3, 9, 26]. Even the five-factor version derived from the original study by Dillas and Jernigan [23] has not been confirmed in later works. However, the four factors remain within Marcia's original proposal.

The reliability coefficients were satisfactory and very similar to previous studies. Nevertheless, the Diffusion dimension obtained somewhat higher values and the Moratorium dimension had slightly lower values in relation to previous works, which partially supported our second hypothesis. One possible explanation for these findings 'differences, especially in relation to the Portuguese population, may be due to the number of items used [43].

The final version of the inventory for Brazilian population was composed of 28 items, 7 fewer than the original. All

items corresponded to the dimension where they were classified in the original and Portuguese version, with the exception of item 34, which after being analyzed was removed from the Diffusion and insert into Moratorium dimension, as we decided to follow the results of the Exploratory Factor Analysis.

Although there are many similarities between the items retained in the Brazilian version and the Portuguese version, some differences should be mentioned, such as in the Diffusion dimension, where the Brazilian version retained four more items than the Portuguese. Still in relation to the number of items, those that did not meet the psychometric criteria were excluded. The exclusion of these items did not affect the domains of vocational identity. Cultural and developmental differences between North American, Portuguese, and Brazilian participants may have been responsible for the item differences. Overall, the results of Exploratory Factorial Analysis and reliability with the analysis of the Brazilian Version of DISI-O are satisfactory and consistent with the theory and investigation of vocational identity.

The third hypothesis, with regard to the variation of identity status across age, is an assumption underlying Erikson's developmental perspective [1, 2], where the likelihood of an older participant to be in Foreclosure and Diffusion is lower than in the youngest participants, although there is no linearity in the cycles [17]. Surprisingly, this hypothesis was not supported and no significant differences were found in the participants' age between the identity statuses. The findings of a meta-analysis with 124 studies [6] clearly indicated an effect of age on identity status. However, in agreement with Kroger, Martinussen and Marcia [6] when the participant's age is relatively high, the likelihood of finding higher differences between the statuses will be lower. A similar situation, with few differences in the statuses and many participants in Achievement, was found by Crocetti,

Avanzini, Hawk, Fraccaroli, and Meeus [44].

About gender differences, overall, the external validity of the DISI-O indicates that there are statistically significant gender differences between the Identity Status means. Men had higher means for Moratorium and not for Diffusion, as hypothesized. We did not find statistically significant differences in the number of men and women in each status. Thus, we consider that the found differences, even though not in the same way as hypothesized, partially support the fourth hypothesis. The fact that there are no differences between the number of men and women in each status is in line with previous studies [9]. The differences found in relation to the Identity Status means may be due to differences in patterns of identity development [6]; similar results were found by another study with DISI-O in college students sample [22].

5. Conclusion

The current study may offer new perspectives to the study of vocational identity in the Brazilian population; however, some limitations must be considered. The fact that there were no significant differences in relation to age and the identity status indicates the need for studies with participants of many different ages, especially adolescents. Another limitation arises from the fact that one of the items has been allocated in a different dimension than the original inventory.

Future researchers should analyze the DISI-O measurement fit through Confirmatory Factorial Analyses with the aim to confirm the multifactorial structure and the composition of the four dimensions. This analysis was not performed because the sample size did not allow the creation of two samples that would have been required for both exploratory and confirmatory factorial analysis.

We also suggested studies on Identity Status nomological network focusing on the development of occupational identity. Longitudinal studies with DISI-O would make an important contribution not only to the validity of the inventory but also to a better understanding of the development of occupational identity in the Brazilian population.

This research is significant because the DISI-O is an instrument that can broaden studies over vocational psychology and identity in Brazil. It allows the placing of occupational identity in connection with a number of other factors, which could suggest clues about how to create the conditions for people's career choices to be adjusted and become a source of satisfaction and well-being.

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